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EXAMINER
LIN, KENNY S

ART UNIT	PAPER NUMBER
2154	11

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
	09/650,254	CHIN, HON WAH
Office Action Summary	Examiner	Art Unit
	Kenny Lin	2154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 March 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-21 are presented for examination.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA

35 U.S.C. 102(e)).

3.   Claims 1-8, 10-11, 14 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by

Melnik, US 6,046,978.

4.   Melnik was cited in the previous office action.

5.   As per claim 1, Melnik taught the invention as claimed including an address protocol for

forwarding a message packet from a source node to a destination node along a sequence of

communicatively coupled nodes functioning as a linear chain network (col.6, lines 61-67, col.7,

lines 1-11), the address protocol comprising:

     a. A relative destination address field including a counter programmed with an

        initial value at the source node corresponding to a destination node that is a

        preselected number of nodes away from the source node along the linear chain

        network (col.3, lines 29-36, col.7, lines 2-19);

     b. Wherein the counter is adjusted by a preselected step in value at each node the

        message packet is forwarded to along the chain network until the counter reaches

        a trigger value indicating that the destination node has been reached (col.3, lines

        29-36, col.7, lines 2-8, col.17, lines 1-4), and

     c. Wherein the destination node does not require address information in addition to

        the counter reaching the trigger value to accept the message packet (col.3, lines

        29-36).

6.   As per claim 5, Melnik taught the invention as claimed including an address protocol for

forwarding a message packet from a source node to a destination node along a sequence of

communicatively coupled nodes functioning as a linear chain network (col.6, lines 61-67, col.7,

lines 1-11), the address protocol comprising:

     a. An identifier field containing an identifier to identify the message packet as

        having a relative address protocol (col.7, lines 9-10, col.8, lines 27-33); and

b. A relative destination address field including a counter programmed with an initial value at the source node corresponding to a destination node that is a preselected number of nodes away from the source node along the linear chain network (col.3, lines 29-36, col.7, lines 2-19);

c. Wherein the counter is adjusted by a preselected step in value at each node the message packet is forwarded to along the chain network until the counter reaches a trigger value indicating that the destination node has been reached (col.3, lines 29-36, col.7, lines 2-8, col.17, lines 1-4), and

d. Wherein the destination node does not require address information in addition to the counter reaching the trigger value to accept the message packet (col.3, lines 29-36).

7. As per claim 14, Melnik taught the invention as claimed including a method of sending a message packet along a portion of a network functioning as a linear chain network from a source node to a destination node using an address protocol having an identifier to identify the message packet as having a relative address protocol (col.6, lines 61-67, col.7, lines 1-11, col.8, lines 27-31), a relative source address field for storing an initial value, and a relative destination address field containing a counter (col.7, lines 2-8), the method comprising the steps of:

a. Selecting an initial value that is a function of a desired number of node hops along the linear chain network from the source node (col.3, lines 29-36);

b. Programming the counter to have the initial value (col.3, lines 29-36, col.13, lines 33-35);

    c. Adjusting the counter by a preselected step in value at each node that the message

        packet is forwarded to (col.3, lines 29-36, col.7, lines 2-19); and

    d. Accepting the message packet at a destination node when the counter value

        reaches a preselected trigger value without requiring address information in

        addition to the counter reaching the trigger value to accept the message packet

        (col.3, lines 29-36, col.7, lines 2-8, col.17, lines 1-4);

Wherein the preselected step in value is chosen so that the counter reaches the trigger

value when the packet has completed the desired number of node hops (col.3, lines

29-36).

8.   As per claim 18, Melnik taught the invention as claimed including a method of sending a

message packet along a chain network having regenerator nodes from a source node to a

destination node using an address protocol having an identifier to identify the message packet as

having a relative address protocol (col.6, lines 61-67, col.7, lines 1-11, col.8, lines 27-33), a

relative source address for storing an initial value, and a relative destination address field

containing a counter (col.7, lines 2-8), the method comprising the steps of:

    a. Selecting an initial value that is a function of a desired number of node hops along

        the linear chain from the source node (col.3, lines 29-36);

    b. Programming the counter to have the initial value (col.3, lines 29-36, col.13, lines

        33-35);

    c. Adjusting the initial value of the counter by a preselected step in value at each node that the message packet is forwarded to (col.3, lines 29-36, col.7, lines 2-19); and

    d. Accepting the message packet at a destination node when the counter value reaches a preselected trigger value without requiring address information in addition to the counter reaching the trigger value to accept the message packet (col.3, lines 29-36, col.7, lines 2-8, col.17, lines 1-4);

Wherein the preselected step in value is chosen so that the initial value reaches the trigger value when the packet has completed the desired number of node hops (col.3, lines 29-36).

9.   As per claim 2, Melnik further taught an identifier field containing an identifier to identify the message packet as having a relative address protocol (col.7, lines 9-10, col.8, lines 27-33)

10.   As per claims 3 and 4, Melnik further taught a relative source destination field containing the initial value (col.3, lines 29-36, col.7, lines 2-10, col.13, lines 33-35).

11.   As per claim 6, Melnik further taught a relative source address field for storing the initial value (col.7, lines 2-10, col.13, lines 33-35).

12.   As per claim 7, Melnik further taught that the initial value is an integer having an

absolute value equal to the desired number of node hops and the counter is changed by a step in

value of one at each node (col.3, lines 29-36, col.7, lines 2-19).

13.   As per claim 8, Melnik further taught that the counter is programmed with the initial

value and the counter is counted down by one at each node hop until a trigger value of zero is

reached (col.3, lines 29-36, col.7, lines 2-19, col.13, lines 33-35).

14.   As per claim 10, Melnik further taught that the initial value is a linear function of the

desired number of node hops (col.3, lines 29-36).

15.   As per claim 11, Melnik further taught that wherein at least one node in the linear chain is

a regenerator element (col.7, lines 12-19).

Claim Rejections - 35 USC § 103

16.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

17.   Claims 9, 12-13, 15-17 and 19-21 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Melnik, US 6,046,978.

18.   As per claim 9, Melnik taught the invention substantially as claimed in claim 7. Melnik

did not specifically teach that the counter has an initial value of zero and the counter is counted

up by one at each node hop until a trigger value equal to the initial value is reached. However,

since Melnik taught that the counter is programmed with the initial value and the counter is

counted down by one at each node hop until a trigger value of zero is reached (col.3, lines 29-36,

col.7, lines 2-19, col.13, lines 33-35), it would have been obvious to instead of decrement the

counter but to increment it. It would have been obvious to one of ordinary skill in the art at the

time the invention was made to set the counter with a zero initial value and have it counted up by

one at each node hop until a trigger value equal to the initial value is reached instead of counting

down in Melnik's method to reach the same result.

19.   As per claims 12-13, Melnik taught the invention substantially as claimed in claim 5.

Melnik did not specifically teach that that wherein the chain network is neither a virtual chain

network nor the chain network comprises a portion of a ring network. However, it would have

been obvious to implement Melnik's teaching to all applicable network environments. It would

have been obvious to one of ordinary skill in the art at the time the invention was made to

expand Melnik's teaching of using hop counters to transmit packets in suitable networks such as

virtual network or ring network.

20.   As per claims 15 and 19, Melnik taught the invention substantially as claimed in claims

14 and 18. Melnik did not specifically teach the message packet to comprise a status query

message and further request the destination node to send a status message packet back to the

source node. However, Melnik disclosed the use of query message (col.11, lines 16-22) and to

have the destination node to send acknowledge packet back to the source node (col.1, lines 46-

50). It would have been obvious to one of ordinary skill in the art at the time the invention was

made to include a status query message in the message packet sent from the source node to the

destination node and to further have the destination node to send back a status packet in Melnik's

method to report the status of such destination node. Furthermore, since Melnik taught to use

identification field and counter in the message packet, program initial values in hop counter,

adjust counter by the preselected step in value at each node that the message packet is forwarded

to, and accepting the message packet when the counter reaches the preselected trigger value

(col.3, lines 29-36, col.7, lines 2-19, col.13, lines 33-35, col.17, lines 1-4), it would have been

obvious to implement such teachings in the status message packet as well. It would have been

obvious to one of ordinary skill in the art at the time the invention was made to include Melnik's

teachings of using identification field, counter, counter adjusting and packet accepting in not

only the message packet sent from the source node, but also the status message packet sent from

the destination node back to the source node as well.

21.   As per claim 16, Melnik taught the invention substantially as claimed in claim 15.

Melnik further taught that wherein at least one node in the linear chain is a regenerator element

(col.7, lines 12-19).

22.   As per claim 17, Melnik taught the invention substantially as claimed in claim 15.

Melnik further taught to:

    a. selecting a return message (col.1, lines 46-50);

    b. programming a second counter disposed in an address protocol of the return
message to have a return value having equal magnitude of the initial value (col.3,
lines 29-36, col.13, lines 33-35);

    c. transmitting the second message in the return direction (col.1, lines 46-50);

    d. adjusting the second counter by the magnitude of the preselected value at each
node that the message packet is forwarded to (col.3, lines 29-36, col.7, lines 2-
19); and

    e. accepting the return message packet at the source node when the second counter
reaches the preselected trigger value (col.3, lines 29-36, col.7, lines 2-8, col.17,
lines 1-4).

23.   As per claim 20, Melnik taught the invention substantially as claimed in claim 19.
Melnik did not specifically teach to send a plurality of status query messages to a plurality of
destination nodes, the destination nodes having initial values corresponding to nodes that are
each a different number of node hops from the source node and to receive status message from
responding destination nodes; and determining the relative distance of responding nodes as a
function of the initial value of each responding node; Whereby a fault is isolated to a part of the
network subsequent to the responding active node the greatest number of node hops from the
source node. However, it would have been obvious to send a plurality of status query message to
a plurality of destination nodes and to have the destination nodes to send status message back
since Melnik taught to send query message to a destination node (col.11, lines 16-22) and to send

acknowledgement message back to the source node (col.1, lines 46-50). Furthermore, it would

have been obvious to use the initial value corresponding to nodes that are each a different

number of node hops from the source node to determine the relative distance of them where

network fault can be isolated subsequent to the farthest node away from the source node. It

would have been obvious to one of ordinary skill in the art at the time the invention was made to

enable the source node in Melnik's method to send multiple status query message to multiple

destination nodes to obtain status message and determine relative distance of the nodes.

24.   As per claim 21, Melnik taught the invention substantially as claimed in claim 14.

Melnik further taught the method to comprise the steps of detecting a fault in a linear chain of

regenerator nodes using the relative address protocol (col.5, lines 36-45, col.6, lines 61-67, col.7,

lines 1-11, 20-30, col.8, lines 27-33) by:

      a. Sending a first status query message packet requesting a return status message

          from a destination node at least one node hope from the source node (col.6, lines

          61-67, col.7, lines 1-11, col.11, lines 16-22).

Melnik did not specifically teach to send at least one subsequent status query message packet

requesting a return status message from another destination node corresponding to a different

number of node hops from the source node and recording whether the return status message is

received at the source node; and determine the node the greatest number of node hops from the

source node replying to the status query message directed to it; wherein a fault is isolated to a

portion of the chain network subsequent to the node the greatest number of node hops from the

source node returning the corresponding status message. However, it would have been obvious to send a plurality of status query message to a plurality of destination nodes subsequent to the transmission of first status query message and to have the destination nodes to return status messages back since Melnik taught to send query message to a destination node (col.11, lines 16-22) and to send acknowledgement message back to the source node (col.1, lines 46-50). Furthermore, it would have been obvious to use the initial value corresponding to nodes that are each a different number of node hops from the source node to determine the node the greatest number of node hops from the source node where network fault can be isolated subsequent to it. It would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the source node in Melnik's method to send multiple status query message to multiple destination nodes to obtain status message and determine relative distance of the nodes.

Response to Arguments

25.   Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

26.   In the remark, applicant argued that (1) Melnik does not teach a destination node for a forwarded message packet does not require address information in addition to the counter reaching the trigger body in order to accept the message packet.

27.   Examiner traverse the argument that:

As to point (1), examiner has cited new areas in Melnik's reference pointing out that Melnik

teaches the limitation. See rejection above.

Conclusion

28.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

      Perlman et al, US 5,781,534.

      Feldman et al, US 6,130,889.

      Malkin, RFC 1393 – Traceroute Using an IP Option, January 1993.

      Gavron. Ehud, traceroute faq., Google Groups, March 18, 1996.

29.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

      A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

30.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenny Lin whose telephone number is (703)305-0438. The

examiner can normally be reached on 8 AM to 5 PM Tuesday to Friday and every other Monday.

       If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Follansbee can be reached on (703)305-8498. Additionally, the fax numbers for

Group 2100 are as follows:

       Official Responses: (703) 872-9306

       Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703)305-6121.

ksl
April 1, 2004

ZARNI MAUNG
PRIMARY EXAMINER